

Ecological Characteristics and Management Opportunities

This section summarizes the ecological characteristics and management opportunities of the Superior Coastal Plain ecological landscape. Information is sourced from numerous documents, including primarily:

- The Ecological Landscapes of Wisconsin: an assessment of ecological resources and a guide to planning sustainable management (WDNR 2015)
- Rapid Ecological Assessments (for specific property groups; WDNR)
- Wisconsin Wildlife Action Plan (WDNR 2015)

Two prominent features in the Superior Coastal Plain Ecological Landscape are considered significant on both a Wisconsin and global scale: the Lake Superior shoreline (including unique coastal estuaries and river corridors) and the Apostle Islands. The unique red clay wetlands and the Boreal Forests of the Superior Coastal Plain are considered significant both in Wisconsin and in the United States as a whole. These distinctive landscape features play a critical role in maintaining Wisconsin's unique biological diversity.

The reddish soil here is found nowhere else in Wisconsin. Poorly-drained reddish lacustrine clays, especially erosion-prone when cut by streams, exist on both sides of the Bayfield Peninsula. In contrast, the Bayfield Peninsula itself has a variety of clays, silts, loams, and sands. Organic soils in this region are rare and limited to peatlands on the margins of coastal lagoons.

Historic vegetation and composition of the boreal forests were characterized by older forests and conifers (e.g. eastern hemlock, eastern white pine, white spruce, balsam fir, and northern white cedar. These forests no longer exist in the same magnitude due to the harvesting and slash fires of the late 1800s and early 1900s known as the Great Cutover. Many forests now are relatively young and dominated by aspen and maple. While conifers are currently underrepresented, their increase is the current target of forestry restoration and management practices.

The distinctive Lake Superior Coastal Plain habitats such as rock cliffs and shores, coastal estuaries, fens, bogs, ridge and swale complexes, beaches and dunes, and boreal forests support abundant wildlife. Many rare plant species occur here, including 16 known only to this landscape and five that are globally rare. Rare animal species including the charismatic American marten, spruce grouse, boreal owls and an occasional moose are present in the Superior Coastal Plain. Superior Coastal Plain habitats also provide critical nesting, feeding, and resting areas for a wide variety of migratory waterfowl, songbirds, shorebirds and raptors. Islands along the Lake Superior shores host enormous rookeries of terns, herons, and gulls.

Lake Superior supports an important sport fishery for lake trout, coho salmon, lake whitefish, brown trout, lake herring, and rainbow smelt, with walleye, smallmouth bass, northern pike, and yellow perch in the shallower bays. Lake Superior tributaries are important spawning areas for trout and salmon. Some of these noteworthy rivers are included below, under significant management opportunities.

Current land cover lacks the significance of the previously extensive forests. Approximately 57% is classified as timberland, with aspen and birch forests managed for pulp, which have increased in prominence over the formerly dominant boreal conifers. Second growth northern hardwood forests are interspersed. Some of the deep stream valleys contain important refugia for vegetation not directly affected by the Great Cutover. Small but exceptional stands of old-growth forest occur on the Apostle Islands.



Deforestation has led to severe spring flooding during and following snowmelt, exacerbated by the clay soils. Flooding in many watersheds has increased due to the increased acres of open land, rate and timing of snowmelt and the greater overall quantity of water reaching streams. Government agencies and landowners are making efforts toward reforestation and stream restoration to help correct this problem.

Cool temperatures, coupled with the extended time needed for the heavy soils to warm in spring limit agriculture to dairy, beef, or poultry production. The growing season of the Superior Coastal Plain is generally too short for row crops. Scattered old, grassy fields and pastures on the landscape host populations of rare grassland birds. Specialty crops such as apples and berries are grown on the Bayfield Peninsula, due to its soil and longer growing season, owed to the moderating effects of Lake Superior.

Significant ecological management opportunities for the Superior Coastal Plain Ecological Landscape include:

- * Lake Superior Coastal habitats
- * Apostle Islands
- * Freshwater river estuaries (St. Louis, Bad/Kakagon, Big Bay, Port Wing, Brule, Bark, Raspberry, etc)
- * River corridors, including cliffs, ledges, & falls
- * Red clay wetlands
- * Boreal Forests
- * Migratory Bird Concentration Areas

The unique features and significant management opportunities listed above are associated with distinctive natural communities, aquatic features, and select habitats. This relationship is portrayed in the table below.



Natural communities, aquatic features, and selected habitats associated with each ecological feature within the Superior Coastal Plain Ecological Landscape (drawn directly from The Ecological Landscapes of Wisconsin)

Ecological features ^a habitats	Natural communities, ^b aquatic features, and selected
Lake Superior	Great Lakes Barrens Great Lakes Beach Great Lakes Bedrock Shore Great Lakes Dune Great Lakes Ridge and Swale Shore Fen Lake Superior
Apostle Islands	Boreal Forest Northern Dry Forest Northern Dry-mesic Forest Northern Mesic forest Great Lakes Barrens Great Lakes Ridge and Swale Shore Fen Interdunal Wetland Ephemeral Pond Dry Cliff Moist Cliff Great Lakes Dunes Great Lakes Beach
Freshwater estuaries	Black Spruce Swamp Tamarack Swamp Alder Thicket Shrub-carr Northern Sedge Meadow Poor Fen Shore Fen Emergent Marsh Marsh – Wild Rice Submergent Marsh
Boreal (Clay Plain) Forest	Boreal Forest Northern Mesic Forest Ephemeral Pond
Red clay wetlands	Boreal Forest Alder Thicket Shrub-carr Northern Sedge Meadow Emergent Marsh



Submergent Marsh

River corridors

Northern Dry forest
 Northern Dry-Mesic Forest
 Northern Mesic Forest
 Northern Wet-Mesic Forest
 Northern Wet Forest
 Northern Hardwood Swamp
 Floodplain Forest
 Coldwater Stream
 Coolwater Stream
 Warmwater River
 Warmwater Stream

Migratory Bird Concentration Areas

Boreal Forest
 Northern Dry Forest
 Northern Dry-mesic Forest
 Northern Mesic Forest
 Emergent Marsh
 Shore Fen
 Great Lakes Dune
 Great Lakes Beach
 Great Lakes Ridge and Swale
 Lake Superior

Colonial birds: gulls, terns, cormorants

Emergent Marsh
 Shore Fen
 Great Lakes Dune
 Great Lakes Beach
 Great Lakes Ridge and Swale
 Lake Superior

Rare species

Virtually all natural communities

Miscellaneous opportunities

Boreal Forest
 Northern Mesic Forest
 Surrogate Grasslands
 Open Bog
 Emergent Marsh – Wild Rice
 Clay Seepage Bluff^a

A.) An “ecological feature” is a natural community or group of natural communities or other significant habitats that occur in close proximity and may be affected by similar natural disturbances or interdependent in some other way. Ecological features were defined as management opportunities because individual natural communities often occur as part of a continuum (e.g., prairie to savanna to woodland, or marsh to meadow to shrub swamp to wet forest) or characteristically occur within a group of interacting community types (e.g., lakes within a forested



matrix) that for some purposes can more effectively be planned and managed together rather than as separate entities. This does not imply that management actions for the individual communities or habitats are the same. B.) See Chapter 7, “Natural Communities, Aquatic Features, and Selected Habitats of Wisconsin,” for definitions of natural community types.

Landscape Level Priorities – Outstanding Opportunities

In summary, listed below are the outstanding ecological features of the landscape as identified in Ecological Landscapes of Wisconsin (Chapt 21, WDNR 2015):

- Lake Superior is the largest freshwater lake in the world by area; it is deeper and holds more water than any lake in North America.
- The Apostle Islands host exceptional examples of old-growth forest, coastal wetlands, and sandstone cliffs.
- Southwestern Lake Superior features many sandscapes, drowned river mouths, and freshwater estuaries.
- The best – and only – opportunities in Wisconsin to manage for the unique Boreal (Clay Plain) Forest occur here.
- Red clay wetlands near Superior support a diverse flora including many rare plants, some found nowhere else in the state.
- Corridors of the larger rivers feature protection opportunities for unusual natural communities, habitat for rare species, and routes for migrating and dispersing animals. Corridors of the St. Louis, Nemadji, Brule, and Bad Rivers are especially notable.
- Important migratory Bird Concentration Areas occur in/around the St. Louis River Estuary, Chequamegon Bay, and Apostle Islands.
- Important nesting sites for colonial birds such as terns, gulls, and cormorants occur here.
- Scattered rare species populations, including plants and animals found nowhere else in Wisconsin.
 - Miscellaneous rare communities or habitats (not covered by previous bullets) underrepresented on public lands or in protected areas are found in the Superior Coastal Plain.

